

**CLAIMS**

1. An antimicrobial composition comprising (a) an antimicrobially effective amount of a dissolved antimicrobial metal ion and (b) a dissolved halide ion,  
5 wherein the halide ion is present in a sufficient excess relative to the amount of the metal ion present to stabilise the antimicrobial activity of the metal ion against loss on exposure to light and gamma radiation.
2. An antimicrobial composition according to claim 1, wherein the ions are  
10 dissolved in a solvent comprising one or both of water and an organic polyhydric alcohol.
3. An antimicrobial composition according to claim 2, wherein the organic polyhydric alcohol is glycerol or sorbitol.  
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4. An antimicrobial composition according to claim 2, wherein the solvent comprises water.
5. An antimicrobial composition according to any one of the preceding claims,  
20 wherein the antimicrobial metal ion is silver.
6. An antimicrobial composition according to any one of the preceding claims, wherein the halide ion is present in an at least about 450-fold molar excess relative to the metal ion.  
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7. An antimicrobial composition comprising dissolved halide ion and an antimicrobially effective amount of dissolved silver ion, wherein the halide ion is present in an at least about 450-fold molar excess relative to the amount of the silver ion present.  
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8. An antimicrobial composition according to claim 7, wherein the ions are dissolved in a solvent comprising one or both of water and an organic polyhydric alcohol.

9. An antimicrobial composition according to claim 8, wherein the organic polyhydric alcohol is glycerol or sorbitol.
- 5 10. An antimicrobial composition according to claim 8, wherein the solvent comprises water.
11. An antimicrobial composition according to any one of the preceding claims, wherein the equivalent relative humidity or water activity of the composition does not exceed about 75%.
- 10 12. An antimicrobial composition according to any one of the preceding claims, wherein the equivalent relative humidity or water activity of the composition does not exceed about 70%.
- 15 13. An antimicrobial composition according to any one of the preceding claims, wherein the halide ion is chloride.
14. An antimicrobial composition according to any one of the preceding claims, wherein the halide ion is present in an at least about 500-fold molar excess relative to the metal ion.
- 20 15. An antimicrobial composition according to any one of the preceding claims, wherein the composition is effectively free of other agents for stabilising the antimicrobial activity of the metal ion against light and gamma other radiation.
- 25 16. An antimicrobial composition according to any one of the preceding claims, wherein the composition is effectively free of chelating agents for the antimicrobial metal ion.
- 30 17. An antimicrobial composition according to any one of the preceding claims, wherein the composition is effectively free of acyclic polyethers complexed with the antimicrobial metal ion.

18. An antimicrobial composition according to any one of the preceding claims, wherein the composition is effectively free of copper and zinc ions.
- 5 19. A light-stable antimicrobial hydrogel composition comprising a hydrogel polymer and an antimicrobially effective amount of an antimicrobial composition according to any one of the preceding claims.
- 10 20. A hydrogel composition according to claim 19, wherein the hydrogel polymer is selected from polymers formed from monomers selected from: the sodium salt of acrylic acid, the sodium salt of methacrylic acid, the potassium salt of acrylic acid, the potassium salt of methacrylic acid, the sodium salt of 3-sulphopropyl acrylate, the sodium salt of 3-sulphopropyl methacrylate, the potassium salt of 3-sulphopropyl acrylate, the potassium salt of 3-sulphopropyl methacrylate, the sodium salt of 2-acrylamido-2-methylpropane sulphonic acid, the potassium salt of 2-acrylamido-2-methylpropane sulphonic acid, a quaternary ammonium salt of acrylic acid, 15 a quaternary ammonium salt of methacrylic acid, a quaternary ammonium salt of an N-substituted acrylamide, N-acryloylmorpholine, acrylamide, N-substituted acrylamide, acrylic acid, methacrylic acid, N-vinyl lactams, N-vinyl pyrrolidone, and any combination thereof.
- 20 21. A hydrogel composition according to claim 19 or 20, further comprising one or more other ingredients; preferably in minor amounts compared with the ingredients stated in the said claim 19 or 20.
- 25 22. A hydrogel composition according to claim 21, wherein the said one or more other ingredients is selected from: one or more ionic and/or non-ionic compounds, such as medicaments (for example: antiseptics, additional antimicrobial agents, antibiotics, analgesics, anaesthetics), humectants (for example, glycerol, sorbitol), vitamins, adhesion enhancers (for example: vinyl acetate dioctylmaleate copolymers), pH buffers, surfactants and water soluble polymers (for example: polysaccharides and synthetic polymers).
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23. A hydrogel composition according to any one of claims 19 to 22, selected from sheet hydrogels, shaped hydrogels, amorphous hydrogels and foamed hydrogels.
- 5 24. A hydrogel composition according to any one of claims 19 to 23, further comprising an organic plasticiser or humectant and being bioadhesive.
25. A pharmaceutical composition, preferably for topical application, comprising an antimicrobially effective amount of a composition according to any one  
10 of the preceding claims as an active antimicrobial agent.
26. A medical device comprising an antimicrobially effective amount of a composition according to any one of claims 1 to 24 as an active  
15 antimicrobial agent.
27. A wound dressing comprising an antimicrobially effective amount of a composition according to any one of claims 1 to 24 as an active antimicrobial agent.
- 20 28. A suture comprising an antimicrobially effective amount of a composition according to any one of claims 1 to 24 as an active antimicrobial agent.
29. A method of treating or preventing microbial infection in a human or non-human animal in need thereof, which comprises administering to the human  
25 or non-human animal an antimicrobially effective amount of a composition according to any one of claims 1 to 25.
30. A method according to claim 29, wherein the administration is carried out by using a pharmaceutical composition according to claim 25 in a surgical  
30 or therapeutic method.
31. A method according to claim 29, wherein the administration is carried out by using a medical device according to claim 26 in a surgical or therapeutic method.

32. A method according to claim 29, wherein the administration is carried out by using a wound dressing according to claim 27 in a surgical or therapeutic method.
- 5 33. A method according to claim 29, wherein the administration is carried out by using a suture according to claim 28 in a surgical or therapeutic method.
- 10 34. In an antimicrobial composition comprising (a) an antimicrobially effective amount of a dissolved antimicrobial metal ion and (b) a dissolved halide ion present in a molar excess relative to the metal ion, the use of sufficient excess of the halide ion to stabilise the antimicrobial activity of the metal ion against loss on exposure to light and gamma radiation, preferably without the need for non-halide stabilising agents.
- 15 35. A use according to claim 34, wherein the composition is a composition according to any one of claims 2 to 24 or is present in a pharmaceutical composition, medical device, wound dressing or suture according to any one of claims 25 to 28.
- 20 36. In a photo- and/or gamma-activated polymerisation process for preparing an antimicrobial hydrogel composition comprising a hydrogel polymer and an antimicrobially effective amount of a dissolved antimicrobial metal ion, the use of a sufficient molar excess, relative to the metal ion, of a dissolved halide ion in a polymerisable pre-mix containing the metal ion and to be
- 25 exposed to light and/or gamma radiation for the said polymerisation, to stabilise the antimicrobial activity of the metal ion against loss on exposure of the metal ion to the said light and/or gamma radiation during the said polymerisation, preferably without the need for non-halide stabilising agents.
- 30 37. A use according to claim 36, wherein the composition is a composition according to any one of claims 2 to 24 or is a composition for use in a pharmaceutical composition, medical device, wound dressing or suture according to any one of claims 25 to 28.